LATE HOLOCENE ENVIRONMENTAL HISTORY OF NORTHLAND, NEW ZEALAND

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LATE HOLOCENE ENVIRONMENTAL HISTORY OF NORTHLAND, NEW ZEALAND

Errata

Please note typographical errors have occurred on the following pages:

p. 96 line 3; for regions read region's

p. 122 line 6; should read

individual anticyclones than the rest of the country. As a result the prevailing wind

p. 122 line 12; for amount read amounts

p. 122 line 14; for trough read troughs

p. 125 last line; for (rainfall $^{3}0.1$ mm) read (rainfall ≥ 0.1 mm)

p. 137 last line; for (*Typha latifolia sp.*) read (*Typha latifolia* sp.)

p. 172 line 20; for (Westland *quintinia*) read (Westland quintinia)

p. 198 line 24; for Polynesian read Polynesians

p. 199 line 14; should read

Polynesian colonisation history was marked by rapid decline of the forest cover.

p. 222 line 14; for Asterace read Asteracea

p. 236 line 23; for archeology read archaeology

p. 249 line 20; for investigation read investigations

p. 327 line 26; for Cores 1-3 read Cores 2-4

p. 328 line 1; for core 1 read core 2; line 6 for Core 2 read Core 3; line 9 for Core 3 read Core 4; line 11 for core 2 read core 3

p. 344 lines 4, 8, 12; for meter read metre

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ABSTRACT

This thesis describes the environmental changes inferred from sedimentological investigations of sediment sequences at three lowland swamp and lake sites of Late Holocene age in Northland, northern North Island. The sites investigated are Wharau Road Swamp (coastal Bay of Islands), Lake Tauanui (inland Bay of Islands) and Lake Taumatawhana (central Aupouri Peninsula).

The purpose of this sediment-based study was to reconstruct aspects of the environmental histories at these localities which would reflect the different environmental changes, natural and anthropogenic, that the sites proper and their drainage basins underwent through the passage of time. Particular emphasis was placed on human-induced environmental changes in order to address the on-going debate over the date of arrival of people in New Zealand. To this end the sediment sequences collected from the drainage basins of the above sites were analysed for a number of sedimentary parameters, including texture, sediment chemistry, mineralogy and organic matter content. In order to distinguish between natural and anthropogenic disturbances the results of these analyses were compared against the results of pollen and charcoal counts performed on the same sediment sequences.

Wherever significant breaks in the sedimentological and palynological record of the sediment sequences were encountered, (bulk) samples were submitted for radiocarbon dating to establish a chronology of environmental changes. At Wharau Road Swamp the radiocarbon chronology was enhanced by the occurrence of one macro-tephra layer within the sediment sequence.

The establishment of a radiocarbon chronology finally allowed one to determine the onset of sedimentologically-palynologically-demonstrated anthropogenic catchment disturbance at the respective localities. At Wharau Road earliest human presence was dated to *ca.* 600 (uncalibrated) years B.P. (about A.D. 1350) and at Lake Taumatawhana at *ca.* 900 (uncalibrated) years B.P. (about A.D. 1050). At Lake Tauanui

sedimentological and palynological evidence for the beginning of human activities provide different dates. While sedimentological data only supported a date of *ca*. 350 (uncalibrated) years B.P. (about A.D. 1600) for the onset of human-induced catchment disturbances, the pollen and charcoal record suggested that anthropogenic deforestation began at *ca*. 1100 years B.P. (about A.D. 850).

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BACKPOCKET:

(Reprint) of Elliot, M B; Striewski, B; Flenley, J R; Sutton, D G (1995). Palynological and sedimentological evidence for a radiocarbon chronology of environmental change and Polynesian deforestation from Lake Taumatawhana, Northland, New Zealand. *Radiocarbon* 37: 899-916.

(Reprint) of Elliot, M B; Striewski, B; Flenley, J R; Kirkman, J H; Sutton, D G (1997). A 4300 year palynological and sedimentological record of environmental change and impact from Wharau Road Swamp, Northland, New Zealand. *Journal of the Royal Society of New Zealand* 27: 401-418.

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